Session 618

Optimizing WebObjects Applications

Brian Fitzpatrick
Senior Consulting Engineer

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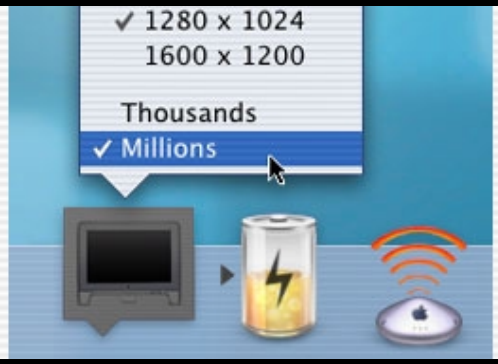
Friday Afternoon Nap With WebObjects



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Introduction

- Goal: Find and eliminate performance bottlenecks
- Three areas to be addressed:
  - Tools needed to identify trouble spots
  - Types of bottlenecks to look for
  - Techniques which eliminate bottlenecks

What You'll Learn

- When to do performance tuning
- How to use Playback and WOEvent to measure performance
- WebObjects and EOF techniques for improving performance
- When it's time to upgrade your hardware

When to Start Tuning?

"Premature optimization is the root of all evil."

—Donald Knuth

- Functional stability should come first
- Don't sacrifice good design and maintainability
- Don't optimize without measuring
- Measure, modify, then measure again

Technology Framework

- WOEvent profiles methods in your components
- PlaybackManager can simulate multiple users
- EOF SQL debugging shows how your application talks to the database

Before You Start

- Make certain your test environment reflects the deployment environment
  - Operating System
  - RAM/CPU/Network
  - Numbers and kinds of servers
- Isolate test environment from users

Before You Start

- Determine which pages are important
- Establish an acceptance criteria
  - All pages should return in under 0.5 seconds
  - The 'Big Query' page should return in under 5 seconds
  - Support 400 concurrent users
- Create test cases which exercise important pages

Prepare Your Test Case(s)

- Enable recording for a single instance:

  WORecordingPath *path*

- Manually execute a test case
- Stop the application
- Repeat for each test case

Run Your Test Cases

- Preference settings for deployment
  WOCachingEnabled YES
  WODebuggingEnabled NO
  WOAllowsConcurrentRequestHandling NO
- Disable recording and start more than one instance
- Run multiple playbacks
- Let the system achieve steady state

Gather Data

- View transaction times via WOStats
  http://host/cgi-bin/WebObjects/MyApp.woa/wa/WOStats
- Configure event recording via WOEventSetup
  http://host/cgi-bin/WebObjects/MyApp.woa/wa/WOEventSetup
- View sub-transaction times via the WOEventDisplay page

Interpret Data

- Use WOStats to find pages which don't meet your acceptance criteria
- Use WOEventDisplay to narrow your focus on the source of performance problems
- Evaluate times relative to total time

Demo

Recording and Playback

Chris Miner
Senior Consulting Engineer

Performance Improvement

- Reducing trips to the database
- Checkout database communication
  EOAdaptorDebugEnabled YES
- Use batch faulting
- Use prefetching

Performance Improvement

- Using the Shared Editing Context
- Put reference data into the application's shared editing context
  - e.g., WOPopUps, WOBrowsers containing EOs
- Make your app read-only (very fast)
- Avoid recurring fetches of reference data

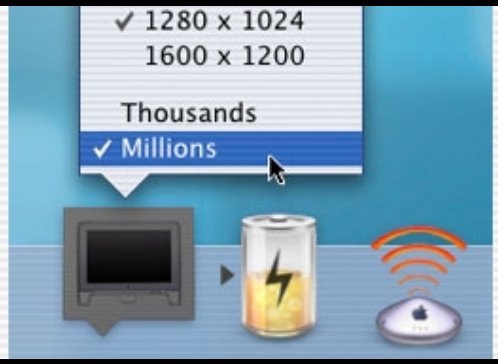
Performance Improvement

Reducing the amount of data

- Use raw rows for non-object data and very large fetches
- Use fetch limits
- Don’t allow unrestricted searches

Demo

Interpreting Results & Improving Performance



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Performance Improvement

- Use lazy instantiation
- Subclass EOGenericRecord instead of EOCustomObject
- Don’t override valueForKey

Performance Improvement

- Synchronize bindings by hand

```
public boolean
synchronizesVariablesWithBindings()
{
        return false;
}
```

- Use stateless components

```
public boolean isStateless()
{
        return true;
}
```

Performance Improvement

- Don’t return null in your action methods

```
public WOComponent myAction() {
        return context().page();
}
```

WebObjects Lab

- Located downstairs in Room K
- Lab hours
  - Monday 12:00pm–6:00pm
  - Tuesday 10:30am–6:00pm
  - Wednesday 10:30am–6:00pm
  - Thursday 10:30am–6:00pm
  - Friday 10:30am–3:30pm

☑ Vote for WebObjects as Best App Server

http://developer.apple.com/webobjects

Roadmap

FF111 Feedback Forum: WebObjects

Room A1
Fri., 3:30pm

Who to Contact

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